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09/830,030	04/20/2001	Yukihito Ichikawa	WATK-211	9377

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EXAMINER

TRAN, HIEN THI

ART UNIT PAPER NUMBER

1764

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/830,030

Applicant(s)

ICHIKAWA ET AL.

Examiner \*

Hien Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 and 34 is/are pending in the application.
- 4a) Of the above claim(s) 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 16-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-32 and 34 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/20/01, 7/17/01 & 6/17/02
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-11, 16-18, in the reply filed on 11/3/04 is acknowledged. The traversal is on the ground(s) that examining all groups will not impose a serious burden on the examiner. This is not true because the search for one group is not the same as that of the other groups as each group is directed to a different system as set forth in the previous office action. Furthermore, applicants requested that claims 30-32, which are amended to recite the honeycomb structure limitation, are included in group I. However, as set forth in the previous office action, the JP 10-59784 and JP 61-068141 which have been denoted as an "X" reference in the applicants' search report for their parent application, PCT/JP00/05862, are evidences that the "special technical feature" common to the claims of groups does not provide either a novel or an unobvious contribution over the prior art. Therefore, there is a lack of unity of invention between the claims of all groups.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 12-15, 19-32, 34 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 11/3/04.

### ***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "71" (Fig. 14); "88" (Figs. 18a, b, etc.); "94" (Fig. 20b); "64, 66, 68, 70" (Fig. 23); "42, 44, 46" (Fig. 25).

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Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to because in Fig. 26, it is unclear as to whether the reference numeral "58" is the same as to the reference numeral "58" set forth in Fig. 23. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any

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required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings to comply with CFR 1.84(p)(5), e.g. they should include the reference sign(s) mentioned in the specification and vice versa.

***Specification***

6. The disclosure is objected to because of the following informalities:

On page 1, line 7 "a" should be changed to --an--.

On page 7, lines 4-8 it is unclear as to what is intended by "wall deformation (sine wave) deformations".

On page 39, lines 8-22 it is unclear as to what applicants are attempting to recite, which 14 cells, or 10 cells or 4 cells are implied.

On page 40, line 25 "53" should be changed to --54-- (note line 18).

On page 59, line 21 --de-sulfurizing-- is misspelled.

On page 66, line 17 "82" should be changed to --83-- (note line 10, Fig. 9); in line 20 "83" should be changed to --84-- (note Fig. 9).

Appropriate correction is required.

7. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Objections***

8. Claims 5, 7 and 10 are objected to because of the following informalities:

In claim 5, line 7 should be deleted as it is the same as line 6.

In claim 7, line 7 --portions-- should be inserted after "face" (note line 4).

In claim 10, line 2 "comprising" should be changed to --wherein the honeycomb structure is made from-- and "a composition" should be deleted (note claim 11).

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-11, 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 9 "the wall face portions" has no clear antecedent basis.

In claim 3, lines 2-3 it is unclear as to whether the wall face portions are the same as to the wall face portions set forth in claim 1, how the wall face portions and the flat wall face portions are related to portions of the walls set forth in claim 1 (note that claim 1 only recites that the wall face portions have an undulated shape), or whether the flat wall face portions are the same as to the intersection portions set forth in claim 1. See claim 8 likewise.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-3, 6-10 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 05-123580.

With respect to claims 1-2, 7, JP 05-123580 discloses an undulated-wall honeycomb structure having a plurality of cell passages defining a cell passage direction, which are mutually parallel in the cell passage direction; wherein intersection portions between walls defining said cell passages have a predetermined pitch in cross-sections perpendicular to said cell passages and are located in a pattern and wherein the wall face portions of said walls excluding said intersection portions have an undulated shape in both the cell passage direction and the cross-sectional direction perpendicular to said cell passage direction (abstract, Figs. 1-3).

With respect to claims 3, 8, JP 05-123580 discloses that the wall face portions including portions having an undulated shape and flat shape (note section 0022, Figs. 2a, 2b).

With respect to claim 6, JP 05-123580 shows that the amplitude of the undulated wall appears to be at least 150% the thickness of the wall (see, for example, Figs. 1-2).

With respect to claim 9, JP 05-123580 discloses that the honeycomb structure has a center portion surrounded by an outer portion, the center portion comprising cell passages defined by undulated wall face portions; the outer portion comprising cell passages defined by flat wall face portions, the thickness of the wall 3 of the cell passages at the outer portion is greater than that of the wall 4 of the cell passages at the center portion (sections 0019, 0021).

With respect to claim 10, JP 05-123580 discloses that the honeycomb structure is made from activated carbon (section 0032).

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With respect to claim 16, JP 05-123580 discloses that the honeycomb structure has an undulated surface for increasing the surface area, and carries a catalyst on the surface thereof for purifying exhaust gas. Placing the honeycomb structure in a housing is inherent therein. (See, for example, abstract, section 0001).

Instant claims 1-3, 6-10 and 16 structurally read on the apparatus of JP 05-123580.

13. Claims 1-2, 4, 7 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 61-68141.

With respect to claims 1-2, 4, 7, JP 61-68141 discloses an undulated-wall honeycomb structure having a plurality of cell passages defining a cell passage direction, which are mutually parallel in the cell passage direction; wherein intersection portions between walls defining said cell passages have a predetermined pitch in cross-sections perpendicular to said cell passages and are located in a pattern and wherein the wall face portions of said walls excluding said intersection portions have an undulated shape in both the cell passage direction and the cross-sectional direction perpendicular to said cell passage direction (abstract, Figs. 2, 4).

With respect to claim 16, JP 61-68141 discloses that the honeycomb structure has an undulated surface for increasing the surface area, and carries a catalyst on the surface thereof for purifying exhaust gas. Placing the honeycomb structure in a housing is inherent therein. Since the translation of the JP 61-68141 is not available at this time, the rejection is based on the abstract and drawings thereof. However, when the translation of the JP '141 becomes available in the future, further rejection based on JP '141 may be appropriate.

Instant claims 1-2, 4, 7, and 16 structurally read on the apparatus of JP 61-68141.



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***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

16. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 61-68141 in view of GB 2,071,640 and Maus et al (WO 96/12876 corresponding to US 6,274,099).

The apparatus of JP 61-68141 is substantially the same as that of the instant claim, but fails to teach whether the deformation is greater at the outer portion than at the center portion.

GB '640 discloses provision of a honeycomb structure having the channels in the outer region clogged for improving the thermal insulation.

Maus et al discloses provision of a honeycomb structure having deformation at the outer region to close channels in the peripheral region for improving the thermal insulation.

It would have been obvious to one having ordinary skill in the art to construct the honeycomb structure of JP 61-68141 so as the deformation at the outer region is greater than that

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at the center region so as to improve the thermal insulation of the structure as taught by GB '640 and Maus et al.

17. Claims 6, 10, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 61-68141 in view of JP 10-059784.

With respect to claim 6, the honeycomb structure of JP 61-68141 is substantially the same as that of the instant claims, but is silent as to the specific amplitude of the undulated walls.

However, JP 10-059784 shows provision of an undulated-wall honeycomb structure having a plurality of cell passages wherein the wall face portions of said walls of said cell passages have an undulated shape, the amplitude of the undulated wall appears to be at least 150% the thickness of the wall (see, for example, Fig. 1).

It would have been obvious to one having ordinary skill in the art to select an appropriate amplitude for the undulated walls, such as the one taught by JP 10-059784 in the apparatus of JP 61-68141, to obtain the desired purification thereof on the basis of its suitability for the intended use as a matter of obvious design choice, and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 105 USPQ 233).

With respect to claim 10, the honeycomb structure of JP 61-68141 is substantially the same as that of the instant claims, but is silent as to the specific material of the honeycomb structure.

However, JP 10-059784 shows provision of an undulated-wall honeycomb structure made of ceramic material, such cordierite, mullite, etc. (see, for example, abstract).

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It would have been obvious to one having ordinary skill in the art to select an appropriate material for the honeycomb structure, such as the one taught by JP 10-059784 in the apparatus of JP 61-68141, on the basis of its suitability for the intended use as a matter of obvious design choice as use of such material is conventional in the art and no cause for patentability here.

With respect to claim 18, the honeycomb structure of JP 61-68141 is substantially the same as that of the instant claims, but is silent as to the specific cell density.

However, JP 10-059784 shows provision of an undulated-wall honeycomb structure having a plurality of cell passages wherein the cell density is normally 280 cpsi (see, for example, abstract).

It would have been obvious to one having ordinary skill in the art to select an appropriate cell density for the honeycomb structure, such as the one taught by JP 10-059784 in the apparatus of JP 61-68141, to obtain the desired purification thereof on the basis of its suitability for the intended use as a matter of obvious design choice, and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 105 USPQ 233).

18. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable JP 05-123580 in view of JP 10-059784.

The same comments with respect to JP 10-059784 apply.

19. Claims 11, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable either JP 05-123580 or (JP 61-68141 in view of JP 10-059784) as applied to claims 10, 16 above and further in view of Abe et al (5,459,119).

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The apparatus of either JP 05-123580 or JP 61-68141 as modified by JP 10-059784 is substantially the same as that of the instant claims, but is silent as to the specific wall thickness and porosity.

However, Abe et al discloses the conventionality of providing a honeycomb structure having the wall thickness and porosity as claimed in the instant claims.

The specific wall thickness and porosity of the honeycomb structure are not considered to confer patentability to the claim. The precise wall thickness and porosity of the honeycomb structure would have been considered a result effective variable by one having ordinary skill in the art. As such, without more, the claimed wall thickness and porosity of the honeycomb structure cannot be considered "critical". Accordingly, one having ordinary skill in the art would have routinely optimized the wall thickness and porosity of the honeycomb structure to obtain the desired purification thereof as evidenced by Abe et al (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 105 USPQ 233).

### ***Conclusion***

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is (571) 272-1454. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Hien Tran**  
**Primary Examiner**  
**Art Unit 1764**

HT